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ABSTRACT

The document presents Module 3, applications of theories of intelligence to the gifted/talented, of the Star Power modules developed for school personnel who have an interest in or a need to explore the area of gifted and talented education. It is explained in an introductory section that the modules can be used for independent study, for small group interaction, or for a large group inservice program. Part I focuses on J. Piaget's theory of intellectual development, while Part II covers B. Bloom's taxonomies of the cognitive/affective domains and A. Harrow's taxonomy of the psychomotor domain. Each part is divided into sections with the following: enabling objectives (such as explain the implications of Piaget's work for educators and apply elements of the psychomotor domain to classroom activities for young gifted/talented students); rationale to establish a frame of reference; preassessment tests and evaluation; instructions for scoring the preassessment instrument; activities (which cover such topics as assigning children to the appropriate Piagetian stage based on observation); and postassessment procedures. (SBH)

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star power

providing for the gifted & talented

MODULE 3

APPLICATIONS OF THEORIES OF INTELLIGENCE TO THE GIFTED/TALENTED

by

Alison Heinemann and Jackie Mallis

EDUCATION SERVICE CENTER, REGION XIII

7703 North Lamar

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1977

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PROCEDURE

The modular approach to professional growth is an alternative to attending workshops and institutes which may be inconveniently located and to taking college courses which may be scheduled at times that are awkward for the individual. The modules can be used for independent study, for small group interaction, or for a large group in-service program. They have been designed to serve as a minicourse, an introduction to the study of gifted child education.

The following is a step-by-step description of the proper procedure.

1. Read the goals and objectives thoughtfully so that you know what is expected of you by completion of the module.

2. Read the rationale to establish a frame of reference.

3. Try the preassessment and compare your responses with those given in the preassessment evaluation.

4. Score your responses IF YOU WISH; then determine whether you will complete those activities specified in the section headed "Entry Level" or whether you will select the activities you feel you need.

5. Proceed to work with the activities identified.

6. Try the postassessment to find out how successful you were in attaining the established objectives.

7. Compare your responses with those given in the postassessment.

8. Decide whether you will recycle as directed, proceed to another module, or invest your time and energy in something else.

The other modules in the STAR POWER series are listed on the inside back cover.

GT # 3

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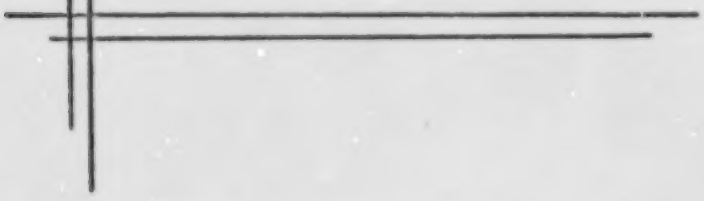
A LOOK AT INTELLIGENCE

"Intelligence is the ability to interact. Just that. With what? With anything: the world, others, oneself. However, what most people are taught to think of as intelligence is the ability to interact with our cultural body of knowledge - books, ideas, the kinds of things that schools emphasize. That is only one aspect of intelligence, and a very limited one."

- Joseph Chilton Pearce



PIAGET'S
THEORY OF INTELLECTUAL DEVELOPMENT

GOAL: *To understand different theories of intelligence as these relate to activities for the gifted/talented.*

I. Enabling Objectives

After completing this part of the module, you will be able to

1. Describe the 4 Piagetian stages of a child's intellectual development.
2. Give an example of a task representative of each stage.
3. Explain the implications of Piaget's work for educators.

II. Rationale

What is intelligence?

The authors of a psychology textbook of the '50s tried to define intelligence by looking at the Revised Stanford-Binet Scale, comparing the items and determining what was being measured. They then defined intelligence *in terms of the test* (Gates, 1950), putting the cart before the horse, as it were.

During the 1920s, a Swiss psychologist - Jean Piaget - discovered through observation and experimentation that as children grow, they go through certain stages of intellectual development and that their perceptions of objects, space, time, and other concepts are far different from those of an adult. For example, the first time a group of kindergarten children were served milk from opaque cartons instead of the usual glass bottles, the children became confused and thwarted in their attempts to locate the milk with their straws once the cartons became half-empty. Some tipped the cartons until the milk spilled out and ran down their chins. Others tried to keep the cartons level and assumed contorted positions themselves while sucking on the straws. Many stopped taking milk with their meals! Most of the others left considerable quantities of milk in the cartons. One child, however, was consistently sure about the position of the milk and was able to match the tilt of the carton with the angle of the straw until the last drop was gone. (Sime, 1973)

This incident illustrates how children perceive the world

differently from an adult. Physical phenomena that adults take for granted as being obvious and logical only gradually become part of the child's understanding. The incident also shows how children of the same age acquire the basic concepts - in this case, a spatial one - at different rates. The children who spilled their milk had very little notion of the shifting surface produced by changes in the angle of the milk carton. Those who tried to keep the carton level were slightly more advanced because they intuitively had some understanding, however imperfect, of a relationship between the liquid's position and the carton's angle. Only one child had acquired a sense of horizonality, indicating unusually mature perception for a child in kindergarten and calling attention to potential giftedness. One way to recognize giftedness is for educators to be sensitive to such stages in the child's intellectual development.

By dividing intellectual growth into periods or stages that are characterized by a particular set of cognitive traits, Piaget has provided a framework within which to assess the level of a child's thinking. This helps the teacher not only to identify exceptional children, but also to provide children with the materials and learning experiences that are appropriate to their particular levels of development, thus meeting the needs of those gifted/talented students already functioning in advanced stages.

III. Preassessment

PLEASE DO NOT WRITE IN THE MODULE.

1. Piaget divided the child's mental growth into four basic stages. From the listed items, (1) select the 4 Piagetian terms for these stages and (2) rank them in order, starting with the earliest stages.

associational	observation
formal operations	semantic
concrete operations	symbolic
psychomotor	pre-operational
sensorimotor	factorial

2. Read the following tasks, then explain briefly the CONCEPT which is being tested for in the procedure. NOTE: It is not necessary to use the special words Piaget did.

   a. A baby is shown an object such as a pocket watch, a teething ring, or rubber ball) which is then suddenly removed from the baby's field of vision. The examiner notes whether the baby shifts his/her attention to something else or searches for the object.

   b. A preschooler is asked to form two equal balls of clay, then to roll one ball of clay into a sausage shape. The child is asked if there is now the same amount of clay in the sausage shape as in the ball.

   c. A first-grader is shown a row of seven vases, then given seven flowers and asked to put one flower into each vase. When this is done, the examiner takes the seven flowers from the vases and holds them in a bunch. The child is asked if there are as many vases as there are flowers, or more, or less.

d. On a table surrounded by four chairs there are three plaster of Paris "mountains." A child is seated in one chair, and a doll is moved from one to another of the remaining three chairs. Looking at photographs or drawings of the "mountains," from different perspectives, the child is asked to choose the view the doll sees each time.

e. An older child is given a bucket of water and an assortment of objects. He/she is asked to make categories of things that will sink and things that will float. Then the child is asked to summarize his/her observations and to look for a general rule that will explain the phenomenon.

Turn to the next pages and compare your responses.

GT # 3

PREASSESSMENT EVALUATION

1. Stages of development identified by Piaget

   I. Sensorimotor

   II. Pre-operational

   III. Concrete Operations

   IV. Formal Operations

   The following chart may help to visualize the different stages and typical age spans:

	APPROPRIATE AGE LEVEL	THOUGHT PROCESS
Sensorimotor	1½ to 4 years	Development of symbolic and preconceptual thought.
Pre-operational	4 to 7 or 8 years	Intuitive thought leading to the threshold of the "operation."
Concrete Operations	7 or 8 to 11 or 12 years	Concrete operations are organized. These are groupings of thought concerning objects that can be manipulated or known through the senses.
Formal Operations	11 or 12 years through adolescence	Formal thought is perfected and "its groupings characterize the completion of reflective intelligence."

Source: From J. Piaget. Piaget's theory. In P. Mussen (Ed.), *Carmichael's manual of child psychology.* Chicago: Rand McNally, 1970, pp. 703–732.

2. One of Piaget's major contributions to the field of child development was his observation that the SEQUENCE of stages in cognitive development is the same for every child - although they occur at different rates with different individuals in different cultures. (The environment is important in relation to the stimulation it provides for the child to interact with objects in the environment.) Therefore, different stages represent different levels of mental development. A 3-year-old child who successfully accomplishes tasks which require a mental age of 5 is probably revealing giftedness.

2. Concepts

a. This experiment tests whether the baby has learned that objects continue to exist whether they can be seen or not--a concept which Piaget calls conservation of objects. (Conservation, a word constantly used by Piaget, means permanence or stability.) Adults tend to assume that the physical world, which seems quite real to them, is perceived in the same ways by the child, but Piaget has shown that even the most elementary perceptions are acquired through much interaction between the child and his/her environment. Conservation of objects is a concept acquired in the SENSORIMOTOR STAGE between birth and age 2.

b. The clay experiment, probably the most famous of the Piagetian tasks, tests the child's understanding of the conservation of quantity(that is, an amount remains the same despite changes in its appearance). A child whose thinking has not reached this level will most often be misled by the length of the sausage shape and will incorrectly maintain that the sausage contains more clay than the ball, even though he/she saw the "sausage" originally as a ball of the same size as the other clay ball. The child's attention is caught by only one detail or dimension; other features are excluded. This limitation - called centering - is characteristic of the PRE-OPERATIONAL STAGE (ages 2-7).

c. This problem tests the child's ability to understand the concept of conservation of number. The flowers, when bunched together, may seem fewer than those placed in the vases in a row. If so, the child does not yet understand that the number of items remains the same in spite of different spatial arrangements. Nor does the child realize that a process can be reversed: the flowers can be returned to the vases, just as the clay can be reshaped into a ball. This inability to understand that something can be reversed, called irreversibility, is another limitation of the PREOPERATIONAL STAGE (ages 2-7).

d. The concept of perspective is the subject of this experiment. The thinking of the pre-operational child is usually dominated by egocentricity; that is, the child cannot imagine objects from any perspective except his/her own. However, the child who has reached the CONCRETE OPERATIONS STAGE (ages 7-11) can accurately identify the doll's view each time.

e. This procedure tests not a single concept but a set of reasoning skills: the ability to classify objects, to account for apparent inconsistencies, to form and test hypotheses that are not self-contradictory, and to generalize. Children who have reached the FORMAL OPERATIONS STAGE (ages 11 on) can usually figure out the principle behind the

Law of Floating Bodies without having to test each object by putting it into the water.

If you prefer, proceed directly to Activities and complete one or more as needed. Otherwise, score your responses according to the following guide; then find your Entry Level.

SCORING

Item 1: Allow 5 points for selecting the correct term.

Add another 5 points if the term is in the proper order. (20 bonus points possible)

Item 2: Allow 10 points for each correct explanation. (Remember: It is not necessary to have Piaget's terminology.)

ENTRY LEVEL

Mastery is represented by a combined score of 63 points or better.

If your score was at least 63, proceed to the next part, Taxonomies of Educational Objectives.

Otherwise, continue with this part of the module.

IV. Activities

1. READING: A CHILD'S EVE VIEW, by Mary Sime (in the kit).
   Read Chapter One, "Piaget's Basic Theories." This author, like others you may encounter, uses a slightly different system of classification. Instead of 4 stages of intellectual development, Sime has 5, having subdivided the pre-operational stage into the pre-conceptual period and the intuitive period.
   Apply the information gained from Sime to the children you know.
2. OBSERVATION EXERCISE: A CHILD'S EYE VIEW, by Mary Sime.
   Choose one or more of the tasks presented in Chapter One, pp. 16-24. Use the task(s) with several young children whose ages range from 4 to 7 or 8. On the basis of your observation, assign each child to the appropriate Piagetian stage. (NOTE: You may want to modify the experiment to fit materials at hand, but be careful not to change the underlying concept.) Consider the following questions:
   a. To what extent did the children's reactions to the tasks reveal distinct stages of intellectual development?
   b. Which actions or statements, if any, were particularly revealing about the child's special way of perceiving concrete reality?
   c. In what ways, if any, were the child's reactions unexpected? What do you conclude from this?

(continued)

d. What implications for the classroom do Piaget's theories suggest to you? What problems do you foresee in implementing them?

Discuss your experiment and the results with a colleague.

3. CLASSROOM APPLICATION: A CHILD'S EYE VIEW, by Mary Sime

For students in secondary school, choose Piagetian experiments from Chapters 6-12 of Sime's book and administer them to several of your students on an individual basis. The procedures should fit the subject of the class and the age level of the pupils. Note each student's approach to the problem and determine which students seem more advanced than their classmates in performing the task(s).

To what extent does this method of evaluation confirm your previous assessment of each child's potential? How do you account for any discrepancies?

4. Order the films, Conservation (#30841 - 30 minutes) and Classification (#21759 - 17 minutes) from Region XIII Education Service Center (453-9131). View the films with one or more colleagues, observing Piaget's methods and experiments. Devise similar tasks for your students to determine at which levels they seem to be functioning. Notice how different children react to the tasks. Watch closely for children who indicate more advanced intellectual development.

5. Listen to the two cassette tapes, explaining Jean Piaget's Theories of Conservation and of Classification. Develop a number of

activities for your gifted/talented students and use them to judge the stages at which different students are operating. Provide opportunities for your students to interact with objects so that they can progress to later stages. Observe how rapidly or how slowly different students move from one stage to another.

6. READING AND APPLICATION: THINKING GOES TO SCHOOL (Furth and Wachs) Read Chapter 1 (pp. 11-30) in THINKING GOES TO SCHOOL - in the kit. Examine the different kinds of activities described in Chapters 3-13. Select 3-5 activities which seem especially suited to the levels of development of students you think may be gifted/talented. Try the games and observe the results. With one or more colleagues, discuss Piaget's theory and the games you used. (Notice that some games are commercially produced. The sources and addresses are given in NOTES, pp. 283-289 in the book.)
7. READING AND APPLICATION: THINKING IS CHILD'S PLAY (Sharp) - in the kit. Skim this little paperback and select activities appropriate for your gifted/talented students. Try all of the activities chosen with 3-6 students and observe how advanced their development is. (You would be helping the parents of your gifted/talented students if you would call their attention to this publication, originally written for parents as well as teachers.)

V. Postassessment

PLEASE DO NOT WRITE IN THE MODULE.

1. List in correct order the 4 Piagetian stages of the child's intellectual development.
2. Describe the aims and procedures of at least 4 assessment tasks based on Piagetian methods.
3. Explain the implications of Piaget's developmental theory for identifying and encouraging giftedness.

Turn to the next page and compare your responses.

GT #3

POSTASSESSMENT EVALUATION

1. The stages are
   a. Sensorimotor
   b. Pre-operational
   c. Concrete operations
   d. Formal operations
2. To evaluate your answer, refer to pp. 7, 8 in the module or to Sime's book.
3. See the last paragraph on page 6 in the module. Or evaluate your response in discussion with colleagues, a counselor, the school psychologist, or an administrator.

Review the objectives on page 1 and rate yourself on a 1 to 5 (high) scale according to your candid opinion of the degree to which you have achieved each objective.

For example: 5 = very well, could not be improved

3 = average, fair demonstration of knowledge and understanding

1 = poor, need much improvement

If you score 3 or lower on any objective, recycle through the appropriate activities; then try the necessary part(s) of the Postassessment again. Otherwise, proceed to the next part.

TAXONOMIES OF THE COGNITIVE/AFFECTIVE/ PSYCHOMOTOR DOMAINS

GOAL: *To understand the various taxonomies of educational objectives with application to classroom activities for the gifted/talented.*

I. Enabling Objectives

After completing this part of the module, you will be able to

1. Explain the taxonomies of Bloom and Krathwohl.
2. Apply each taxonomy to questioning and inquiry-based activities.
3. Describe Harrow's *Taxonomy of the Psychomotor Domain*.
4. Apply elements of the psychomotor domain to classroom activities appropriate for young gifted/talented students.

II. Rationale

In a class of first-graders busily at work copying shapes and line configurations, one little girl burst into tears when the teacher instructed her to draw a man similar to the stick figure in the workbook.

"That doesn't look like a real man," she sobbed.

The teacher agreed, encouraging the child to produce her own version of a man. The drawing turned out to be a shaky but fully rounded figure with detailed features.

This little girl was being asked to perform a copying task (a low level of cognition) when she was capable of a creating task (next to the highest level). She had assimilated the various elements of the actual human body and could synthesize them into a reasonably recognizable representation.

A system of classification of objectives like Bloom's makes it possible for a teacher to interpret the incident described above not as an example of contrary behavior, but as an example of intelligent behavior.

In the mid-50s Benjamin Bloom and others including David R. Krathwohl explored and classified educational goals in both the cognitive and affective domains, developing hierarchies (taxonomies) of these from most basic to most advanced. The more complex ones are those which teachers should emphasize when developing questions, guiding discussion, and planning tasks and assignments for the gifted/talented.

The psychomotor domain received scant attention until E. Simpson issued an informal paper and special report in 1966, followed several years later by Anita J. Harrow's *A Taxonomy of the Psychomotor Domain* published in 1972. The two classifications differ considerably both in content and implications for educators. Because Harrow's model is more like those of Bloom and Krathwohl, it is the one chosen for this module. Like her predecessors' taxonomies, Harrow's is developmental with the categories leading from the lowest level of observable movement behavior to the highest level.

The three taxonomies together can provide a framework for a complete program of confluent education* for the gifted/talented, as well as a guide to devising enrichment activities.

* confluent education: a deliberate intermingling of affective and cognitive objectives.

III. Preassessment

PLEASE DO NOT WRITE IN THE MODULE.

(Note: What is usually referred to as Bloom's *Taxonomy* is actually the work of a committee headed by Bloom, Krathwohl, and Masia. For convenience the first name is used in the model.)

If you prefer to check your answers as you complete each item, turn to the page(s) indicated below the item.

1. From the list of terms below, select the 6 major categories of Bloom's *Taxonomy of the Cognitive Domain* and arrange them correctly from the lowest (1) to the highest (6).

Analysis	Evaluation
Synthesis	Compilation
Knowledge	Coordination
Comprehension	Innovation
Organization	Transfer
Application	

(Pages 20,21)

2. Explain the differences between Categories 4, 5, and 6.

(Page 22)

3. From the list of terms below, choose the 5 major categories of Bloom's *Taxonomy of the Affective Domain* and arrange them correctly from lowest (1) to highest (5)

Valuing	Receiving
Originating	Performing
Responding	Compiling
Adapting	Organizing
Characterizing	

(Page 21)

4. Explain the differences between the fourth and fifth categories of the Affective Domain.

(Pages 22, 23)

5. Complete the hierarchy of Harrow's *The Taxonomy of the Psychomotor Domain.*

1.

2. Basic fundamental movements

3.

4.

5.

6. Non Discursive Communication

(Page 22)

If you did not check your answers while you were working, turn now to the pages indicated and compare your responses.

Number 1: Pages 20, 21
Number 2: Page 22
Number 3: Page 21
Number 4: Pages 22, 23
Number 5: Page 22

GT #3

PREASSESSMENT EVALUATION

1. The main categories of *The Taxonomy of the Cognitive Domain* in order of difficulty are as follows:

   6 Evaluation (highest level)

   5 Synthesis

   4 Analysis

   3 Application

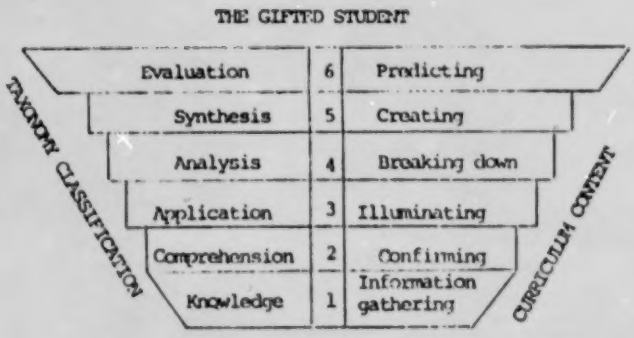
   2 Comprehension

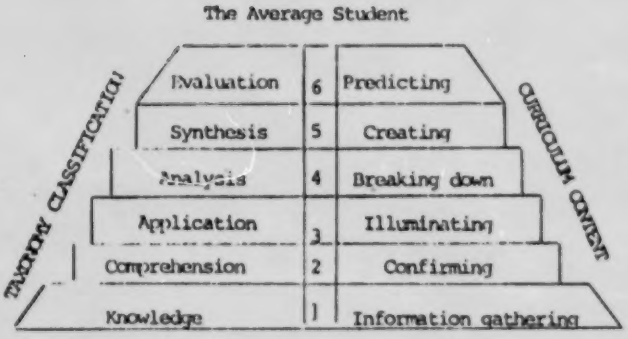
   1 Knowledge

The Taxonomy of the Cognitive Domain which presents 6 basic thought processes in order of increasing complexity was devised by Bloom and his associates in order to help educators understand the different aspects of learning. Using the categories, educators can formulate clearer, more specific educational goals and design more effective curriculum and testing materials for students at the different levels of mental operations. Each operation makes use of and builds on operations in the lower categories.

As the chart on the next page shows, a gifted child (diagram on right) is capable of operating at a higher level than the average child. The size and arrangement of blocks in these diagrams by Kaplan (p. 96) represent the amount of emphasis and time which should be devoted to each objective according to ability level. All children begin with knowledge (Number 1) but the gifted need to spend about 1/8 of their time at this basic stage, moving swiftly on through the second process into the third (application) while the average learner is

still at the knowledge (first) level. Furthermore, the gifted should spend more than half their time engaged in the higher levels: analysis, synthesis, and evaluation.





(From PROVIDING PROGRAMS FOR THE GIFTED AND TALENTED: A HANDBOOK, by Sandra Kaplan, published by the National/State Leadership Training Institute on the Gifted and the Talented, 1974. p. 96)

3. The main categories of the *Taxonomy of the AFFECTIVE Domain* in order of difficulty are these:

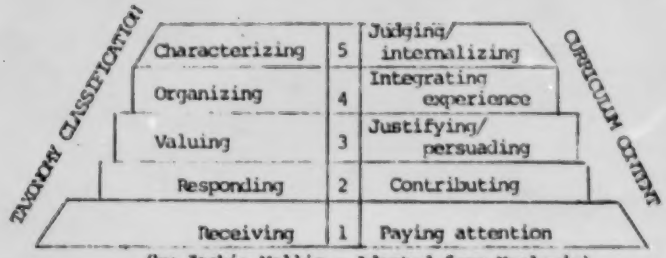
   5 Characterizing (highest level)

   4 Organizing

   3 Valuing

   2 Responding

   1 Receiving



(by Jackie Mallis - Adapted from Kaplan's)

2. *Your answers will vary. But you should have included the underlined elements or their equivalents.*

ANALYSIS involves the breaking down of a communication so that the individual parts are clearly understood and/or the relationships are evident with regard to the organization and/or the ways it conveys certain effects.

SYNTHESIS is the opposite of analysis: the putting together of elements from different sources to create something new; therefore, this is a higher level skill.

EVALUATION requires judgments about purposes, methods, values... Both quantitative and qualitative measures are employed to determine the extent to which criteria have been achieved.

5. The major categories of Harrow's *Taxonomy of the Psychomotor Domain* in order of difficulty are

6 Nondiscursive Communications (highest level)

5 Skilled Movement

4 Physical Abilities

3 Perceptual Ability

2 Basic Fundamental Movement

1 Reflex Movement

(Numbers 6 and 2 were given.)

4. *Your answers will vary, but you should have included the underlined elements or their equivalents.*

When the learner encounters situations for which more than one value is appropriate, it becomes necessary to determine the interrelation-

ships and to establish the primary ones in a system of ORGANIZING.

CHARACTERIZING, by contrast, indicates that the values established at the previous level of Organization have become so much a part of the individual's behavior that he/she no longer has to think about attitudes, beliefs, and ideas, but has a philosophy, probably unconscious, which guides his/her behavior(s).

For gifted/talented students, more interaction should be encouraged on Levels 3, 4, and 5: Valuing, Organizing, and Characterizing. With the relatively recent emphasis on humanizing the classroom and values clarification, this model has important implications for teachers, dealing as it does with the feelings, attitudes, and values which accompany and reinforce productive learning and creative thinking.

GT # 3

If you prefer, proceed directly to Activities and complete one or more as needed. Otherwise, score your responses according to the following guide. Turn the page to find your Entry Level.

SCORING

Item 1: Allow 4 points for selecting each correct term. Allow another 4 points for each term which is in correct sequence.

Item 2: Allow 5 points for each definition which is comprehensive and clearly worded. Ask yourself, "Would my definition help a stranger understand the term?" *The underlined words in the definitions given represent key ideas. Did you include those words or others like them?*

Item 3: Allow 5 points for selecting each correct term. Add another 5 points (total) if the term is in correct sequence.

Item 4: Allow 5 points for each explanation. Be sure you have indicated a *distinct* difference between the fourth and fifth levels.

Item 5: Allow 2 points for each correct term. Add a bonus of 5 points if all were in correct order.

GT # 3

Entry Level

Mastery is represented by a score of 85 or better, including minimum scores. If your total score equals or exceeds 85 with all the minimums indicated below, you need not continue with this module.

Items 1, 2: If your total score is less than 40, you need more experience working with the Cognitive Domain. Complete Activities 1, 2, and/or 5 a, and 6, pp. 26-30, 36-40.

Items 3, 4: If your total is less than 33, you need greater familiarity with the taxonomy of the Affective Domain. Complete Activities 3,4, and/or 5 b, pp. 31-36.

Item 5: If your total score is less than 12, complete Activities 8, 9, and 10, pp. 44-46.

** *NOTE: EVERYONE WHO DID NOT ACHIEVE A SCORE OF 85 OR BETTER SHOULD COMPLETE ACTIVITIES 6 AND 7, pp. 36-43, even though individual minimum scores were achieved on Items 1, 2, 3, or 4. These activities provide practice in applying the taxonomies to specific subject areas and lessons and are accompanied by examples.*

IV. Activities

1. READING: *The Taxonomy of the Cognitive Domain*

   Read thoughtfully the condensed version in the Appendix of the book - in the kit - pages 201-207. Then check your understanding of the material with Comprehension Exercise, Number 2.

2. COMPREHENSION EXERCISE: Cognitive Domain

   The following questions and/or test items require a particular cognitive skill. Classify each item according to one of the six categories described in the reading reference.

   Example: About what proportion of the U.S. population lived on farms in the year --?
   a. 10% b. 20% c. 35% d. 50% e. 60%

   This is a test of KNOWLEDGE (Category 1), the lowest level of the hierarchy. All it requires is recall of previously learned information.

   Example: Read the five interviews with people who have recently taken up farming, and state your conclusions as to their motivations.

   This represents a much higher level of cognition, the ability to SYNTHESIZE. As the student reads the interviews, he/she should be noticing comments which indicate why the individual(s) chose to farm. Some reasons may be forthright statements; others may be implications. The student has to piece these separate parts together into a coherent whole which contains his/her over-all conclusions.

   Think about each of the following questions in terms of which of the six cognitive levels each item represents:

Knowledge	Analysis
Comprehension	Synthesis
Application	Evaluation

   Do not answer the questions themselves.

   PLEASE DO NOT WRITE IN THE MODULE.

   a. What is the meaning of the word *flaccid*?

   b. Name the country noted for its diamond mines.

c. Name the method used by archaeologists to determine the age of artifacts.

d. Explain the meaning of the title of Frost's poem, "Fire and Ice."

e. What does the writer imply in this statement, "If money is truly the root of all evil, the cause of many of Society's ills can be traced to economics"?

f. Restate this proverb in your own words: "One man's meat is another man's poison."

g. With your knowledge of the story so far, predict what Huck will probably do next.

h. Compare and contrast spiders and insects.

i. Summarize the chief points made in this chapter.

j. How did Jenner arrive at his hypothesis that a way could be found to inoculate well persons against smallpox?

k. Identify the various kinds of psychological appeals used in three different kinds of advertisements.

l. Devise a plan to transfer water from areas that regularly flood to other areas that frequently suffer prolonged droughts.

m. Think carefully about the statistics provided and list at least three generalizations based on this information.

n. How valid is Dr. Stare's insistence that Coca-Cola is good for you? Base your answer on Dr. Stare's background.

o. What was the author's apparent purpose in this article?

p. Reread the article on UFOs and list statements based on fact rather than opinion.

q. Complete Experiment 25 as described in your science workbook. Name the item which produced new substances when it was added to the chemicals provided.

r. Rank these individuals according to the significance of their contributions to our knowledge of the universe: Copernicus, Galileo, Armstrong. Give reasons for your rankings.

s. From your study of the Arab-Israeli conflict, state your position with reasons to support your point of view.

t. Complete this equation: $a + 2b + 3c = (c + [b-a]) +$ ___.

KEY TO COMPREHENSION EXERCISE

a, b, and c: Knowledge

All of these require recall: learned vocabulary in order to define the word given; of a geographical fact, of another fact regarding carbon dating.

d, e, and f. Comprehension

The student needs to have read and understood the poem to explain the meaning of the title. In e, understanding of the statement and its meaning are involved in interpretation. In order to paraphrase (put a statement into other words)--just as in translating -- the student must understand the statement.

g, h, and i: Application

In order to predict, one needs to know and understand what has happened so far and use this information to figure out what will probably happen next. For h, the student must recall what he knows and understands about spiders and insects, notice their similarities and differences, then use this information in a comparison. To complete c, the student reviews the author's statements, selects the main ideas, and uses them in the form of a summary

THESE FIRST THREE SKILLS - Knowledge, Comprehension, Application - ARE FUNDAMENTAL, AND AS THE DIAGRAMS ON PAGE 21 INDICATE, MORE TIME AND ATTENTION SHOULD BE DEVOTED TO THESE IF STUDENTS ARE OF AVERAGE AND/OR BELOW AVERAGE ABILITY. *But the gifted/talented flourish on the more challenging skills that follow.*

j and k: Analysis

The student must think about the separate steps that led Jenner to his hypothesis. Likewise, in order to determine which psychological appeals have been used, the student has to sort out individual words and phrases that are associated with the appeals - like "Everyone wants Charlie" or "When you want the best, you owe it to yourself to invest in a --" - and select from the various kinds of appeals the relevant one(s).

l and m: Synthesis

The opposite of Analysis - Synthesis - requires the putting together of separate bits of information, ideas, examples, in order to devise a plan or develop generalizations based on information given.

n and o: Evaluation

Evaluation involves judgments. Determining the background of an "expert" in order to evaluate the worth of a testimonial, recommendation, or claim requires the student to obtain facts about the "expert," to understand how the facts affect the statement(s) made by the "expert," and to decide whether the words of the "expert" are of value. A consideration of the author's probable reasons for writing a particular article is necessary for o, and this demands a knowledge of what the author said, an understanding and analysis of the points made, a synthesis of pertinent material in order to project the author's most likely reason(s) for writing the article.

p and q: Analysis

Using statements in the article, the student must separate opinions from facts, just as the student working with the chemicals must decide which one chemical had been added to the others to produce different substances.

r: Evaluation

"Ranking" involves judgment. The criterion is "contributions to our present knowledge of the universe."

s and t: Synthesis

In order to take a position on a controversial subject, one has to consider the facts of the situation, select one side of the controversy, and put together all the relevant arguments to support the position taken.

GT # 3

To complete the equation, the student must compare relationships, then determine a way to make the individual mathematical statements equal so that all elements joined as indicated will result in the same answer, regardless of the ways the individual elements have been manipulated.

EVALUATION IS THE HIGHEST EDUCATIONAL OBJECTIVE BECAUSE IT NOT ONLY TAKES A STUDENT THROUGH EACH OF THE OTHER LEVELS BUT ALSO DEMANDS IN-PUT FROM THE STUDENT'S GENERAL BACKGROUND AND STANDARDS.

Activities (continued)

3. READING: *The Taxonomy of the Affective Domain*

Read thoughtfully the condensed version in the Appendix of the book - in the kit - pages 186-193. Then check your understanding of the material with Comprehension Exercise, Number 4.

4. COMPREHENSION EXERCISE: Affective Domain

Read the example below thinking about what level is involved and why.

Example: In the picture we just looked at, what season of the year was it?

The question calls for RESPONDING (Category 2) as well as RECEIVing; i.e., hearing the teacher's voice and listening to the question.

Now read the discussion which follows. Think about the kinds of questions asked, the level of involvement they represent, and the amount of student interaction.

This class has just read a short story about a boy named Giovanni who was ashamed of his Italian background. At school he used the English name John. One day a newcomer whose real name was John insisted on walking home with Giovanni although the Italian boy gave every excuse he could think of to prevent the stranger from seeing his neighborhood.

TEACHER: How did Giovanni feel when John wanted to walk home with him?

STUDENT L: John was new in school.

STUDENT A: Giovanni was worried because he didn't want John to know he was Italian.

STUDENT G: Upset. Giovanni's mother was always leaning out of the window talking Italian to the people on the street.

TEACHER: How would you feel about taking a newcomer home with you?

(continued)

STUDENT L: Like Giovanni. Wouldn't want a stranger in my house.

STUDENT S: I'd be proud of my heritage.

STUDENT G: That's easy for you to say. You're a fifth-generation WASP.

STUDENT B: What's a wasp? I thought it was a bug.

TEACHER: What did you mean by that word, G?

STUDENT G: White Anglo-Saxon Protestant: WASP.

STUDENT S: The way you said it I thought you were calling me a dirty name!

TEACHER: How did Giovanni feel about his name?

STUDENT D: He hated it. He wanted an American name.

STUDENT G: In fact, when he was at school he didn't use his Italian name.

TEACHER: Tell me about John's reactions to Giovanni's home.

STUDENT B: He liked it.

STUDENT G: John had never seen some of the things Giovanni's mother had.

STUDENT L: John envied Giovanni because the way Giovanni lived was so different - speaking a different language at home, having Italian music playing most of the time, eating Italian foods...

TEACHER: How did Giovanni feel then?

STUDENT C: Good.

STUDENT J: He realized it wasn't bad to have a different background than the other kids at school.

TEACHER: Some of us also have backgrounds different from others in the class. Can we talk about them?

STUDENT D: I felt like Giovanni when I first moved here. There weren't any other Japanese children. My real name is Sakiko, but I called myself Donna when the neighborhood children asked me who I was.

(continued)

STUDENT A: Sakiko is such a pretty name and so different!

STUDENT D: Different, yes! So is the way we live. And I, too, did not want anyone to go home with me.

STUDENT G: What is different about the way you live?

STUDENT D: We still take our shoes off before we enter... And we sit on the floor to eat. We sleep on tatami mats.

STUDENT J: My mother would like that at our house. Take our shoes off, I mean. She's always complaining about our tracking in mud and wet grass.

STUDENT R: I know how Donna felt. I was the only black child where I come from, and I never thought about my color until I came here and met so many other black people.

TEACHER: Do you feel at ease now with the other black people here?

STUDENT R: No! We don't eat soul food. We didn't even know what it was. I can't even talk like the black people here. I don't know how. I don't feel now as if I belong anywhere!

TEACHER: How many of you feel as if you don't know who you are?

(SEVERAL HANDS ARE RAISED, SOME HESITANTLY.)

TEACHER: You didn't raise your hand, Sharon.

STUDENT S: I know who I am. And I know who I'm NOT. I'm not a WASP. I'm part Spanish, part Greek and I'm Catholic. I had a terrible time with my name. My real name is Penelope - after Ulysses' wife in the *Odyssey*. My family used to call me Nell. At school the kids called me Smelly Nellie to tease me. When we moved here, I adopted my middle name, Sharon.

STUDENT G: How can you be Spanish and Greek and have blonde hair and blue eyes?

STUDENT S: Some Greeks are fair.

STUDENT A: Do you have any special foods or customs that are different from us?

(continued)

STUDENT S: Yes. One of our favorite foods is paella - that's Spanish - and we go to the Greek Orthodox Church instead of the Roman Catholic Church.

STUDENT L: Do you <u>feel</u> different? From the rest of us, I mean?

STUDENT S: Why should I? I'm an American - aren't you? What does it mean to be an American? Most of us were born here, but we came from other countries - 'way back, I mean. I have relatives in both Spain and Greece. We write letters to them and send presents. Someday we're going to visit them.

(THE TEACHER HAD TO TERMINATE THE DISCUSSION AT THIS POINT BECAUSE OF A FIRE DRILL.)

<u>Answer the questions on the following page</u>. PLEASE DO NOT WRITE IN THE MODULE.

4. (Continued) COMPREHENSION QUESTIONS

a. Which student was not RECEIVING at the beginning of the discussion? Explain why you think so.

b. Which students were RESPONDING at the beginning? Explain.

c. Which student seemed to operate at a VALUING level? Explain.

d. Were any of the students at the level of ORGANIZING? If so, who? Explain.

e. Were any of the students at the level of CHARACTERIZING? If so, who? Explain.

Review the teacher's questions; then answer the following:

f. Were the teacher's questions apparently intended to provide learning experiences or to "stump" the students? Explain.

g. Did the teacher's questions require different levels of cognitive activities? Explain.

h. How much interaction did the teacher permit among the students? Elaborate.

i. Did the teacher provide an opportunity to synthesize and generalize from the experience at the end of the questioning period? Explain.

Turn to the next page and compare your responses.

4. *KEY TO COMPREHENSION EXERCISE: Affective Domain*

a. *Student L. His reply was not relevant. Apparently he was not paying attention to the question.*

b. *Students A and G. Both seemed to feel satisfaction in RESPONDING and elaborating on their answers.*

c. *Student L. He was justifying John's enjoyment of Giovanni's way of life.*

d. *Student D seemed to be at the level of ORGANIZING. She had conceptualized and integrated her Japanese value system with the American value system to a degree although she had not yet accepted her original Japanese name.*

e. *Student S appears to be at the level of CHARACTERIZING. She seems to have made judgments about her origins and identity and internalized them to her satisfaction. Although of Spanish and Greek ancestry, she has a vision of herself as an American without having sacrificed her pride in her heritage.*

f. *To provide learning experiences. Some were general open-ended questions about the story; others related to the students' personal experiences associated with the characters and incidents.*

g. *Yes: Knowledge about the story*
Comprehension of the story
Application of ideas and information to own lives
Analysis of facts in own backgrounds pertinent to the discussion
Organization of own experiences
(Synthesis of personal knowledge into a philosophy)

h. *Brief interactions occurred between Students S and L in response to L's comment that he wouldn't want a stranger in his house, also between Students S and G about the same topic. Again between S and G regarding the acronym WASP. Longer interactions occurred first when Donna was speaking, involving Students A, G, and J, each responding to Donna; second, when Student S was speaking near the end with Students G, A, and L asking questions of S.*

i. *The teacher did not provide an opportunity directly. But the discussion and questions directed toward Student S led her to a synthesizing and generalizing kind of closure for the conversation as a whole.*
(Notice how the teacher was more of a facilitator, guiding the discussion, than an authoritarian interrogator. The students appeared relaxed and generally expressed themselves freely.)

5. From your regional Education Service Center, order and view with one or more colleagues the following films:

   a. Objectives in the Cognitive Domain (# 30339 30 min. Region XIII)

   b. Objectives in the Affective Domain (# 30338 30 min. Region XIII)

   Discuss the different categories of the taxonomies and ways they can be used to plan curriculum and/or classroom activities and questions.

6. WORKSHEET: Classroom Application - Cognitive

   The chart below shows both student and teacher behaviors for the different levels of The Taxonomy of the Cognitive Domain. Notice that as the cognitive process becomes more complex, the student becomes more active while the teacher becomes less so. (Adapted from Kaplan, p. 93.)

CHART OF BEHAVIORS: Cognitive Domain

Learning Skill	What Student Does	What Teacher Does
Knowledge (memory)	Absorbs, remembers, recalls, recognizes	Directs, tells, shows, delineates, enlarges, examines
Comprehension	Explains, demonstrates, interprets, extends, enlarges, translates	Demonstrates, compares, questions, contrasts, examines
Application	Solves problems, demonstrates use of knowledge, transfers, constructs	Shows, facilitates, observes, criticizes
Analysis	Discusses, details, lists, dissects, classifies	Probes, guides, observes, acts as a resource
Synthesis	Discusses, generalizes, relates, compares, contrasts, abstracts, designs, creates	Reflects, evaluates, extends, analyzes
Evaluation	Judges, disputes	Accepts, harmonizes

Copy the worksheet on the following page, and adapt Bloom's Taxonomy of the Cognitive Domain to teaching a specific lesson. (Examples on pp. 39+)

Select a topic, skill, or concept which is to be the focus of the learning activities. For each level of thinking, design a problem, exercise, project, question, etc., related to the chosen subject. (Refer to the "cue" words on the preceding chart in planning tasks for students and teacher.

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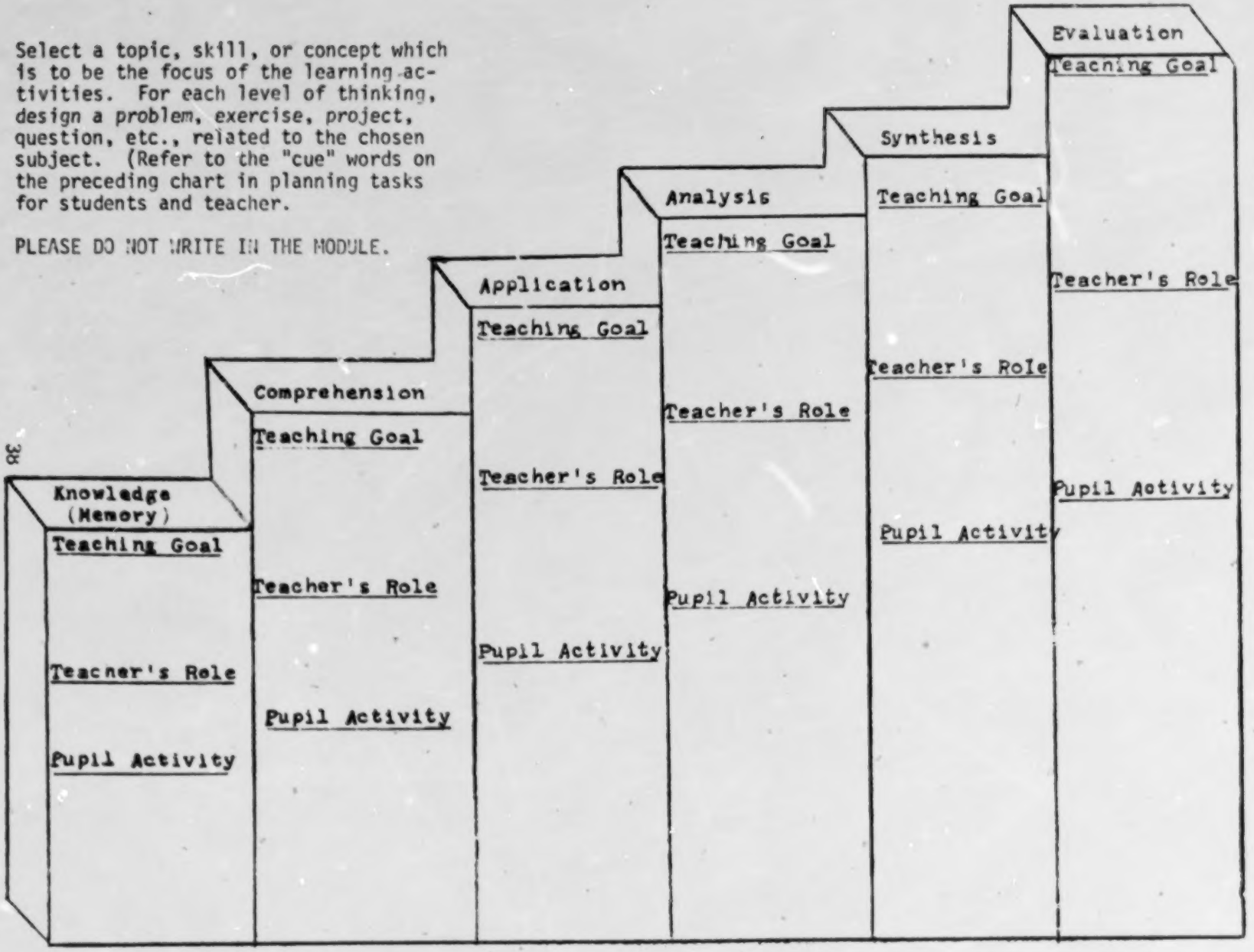


(Adapted from Kaplan, -. 97.)

GI # 3 EXAMPLE: Application of Taxonomy to Literature

Subject: Literature (Short Story, "The Interlopers")

- Idea from Sisk's *Teaching Gifted Children*

KNOWLEDGE (Memory)

Goal: Identify key elements in the story.

Teacher: Direct attention to basic information.

Students: Discuss -

Who were the characters?

For what were they hunting?

During what time of year does the story take place? Where?

Who were the "interlopers"?

COMPREHENSION

Goal: Examine the lives of the two men, comparing, contrasting.

Teacher: Question relationships, reasons...

Students: Discuss -

How were the characters alike? Different?

Why were they enemies?

What caused them to give up their feud?

APPLICATION

Goal: Demonstrate use of knowledge.

Teacher: Observe different student reactions.

Students: Discuss -
At what point in the story could you begin to predict the ending?

ANALYSIS

Goal: Examine the structure of the story.

Teacher: Probe for elements of short story structure.

Students: Discuss -

What purpose did the storm serve?

What was the climax of the story?

What purpose does the title serve?

What is the irony in Georg's two comments about interlopers?

SYNTHESIS

Goal: Relate the episode to students' own lives.

Teacher: Extend students' reading to own experiences.

Students: Discuss -
Two characters who are enemies are the focus of many stories and films - describe something seen or read with this focus.
Have you had personal encounters with someone you disliked? What was the outcome?

EVALUATION

Goal: Rate this story on basis of interest, style, plausibility.

Teacher: Harmonize differences of opinion as need arises.

Students: Discuss -
Did Gradwitz's overtures to Znaeym seem appropriate? Why or why not?

COMPOSITION:
Which of the three stories by Saki - "The Open Windows," "The Lumber Room," "The Interlopers" - was most effective and why? State criteria used.

← - - - - - - - - - - - - - - - - - - →
HIGHER LEVELS

Cognitive Domain

Subject: Science
Assignment: Mammals

KNOWLEDGE	COMPREHENSION	APPLICATION	ANALYSIS	SYNTHESIS	EVALUATION
Goal: To name at least 7 characteristics of mammals.	Goal: To explain how man is a mammal.	Goal: To determine which of various named creatures are mammals.	Goal: To classify list of creatures according to what they eat: . carnivorous . insectivorous . vegetarian.	Goal: To explain why certain non- carnivores are classed as mammals.	Goal: To determine the most significant characteristics which identify mammals.
Teacher's role: Provide filmstrip, Just Like Us - in Some Ways.	Teacher's role: Guide students in charting characteristics.	Teacher's role: Observe and remind students of characteristics of mammals.	Teacher's role: Serve as a resource as needed.	Teacher's role: Help students review the characteristics of mammals as needed.	Teacher's role: Arbitrate if disputes arise.
Pupil Activity: Observation of characteristics of mammals shown in filmstrip.	Pupil Activity: Group chart of characteristics of mammals which are typical also of man.	Pupil Activity: Small group work on diagonal puzzle finding the names of those creatures which are mammals.	Pupil Activity: Small group work with charts.	Pupil Activity: Discussion.	Pupil Activity: Discussion.

← - →
HIGHER LEVELS

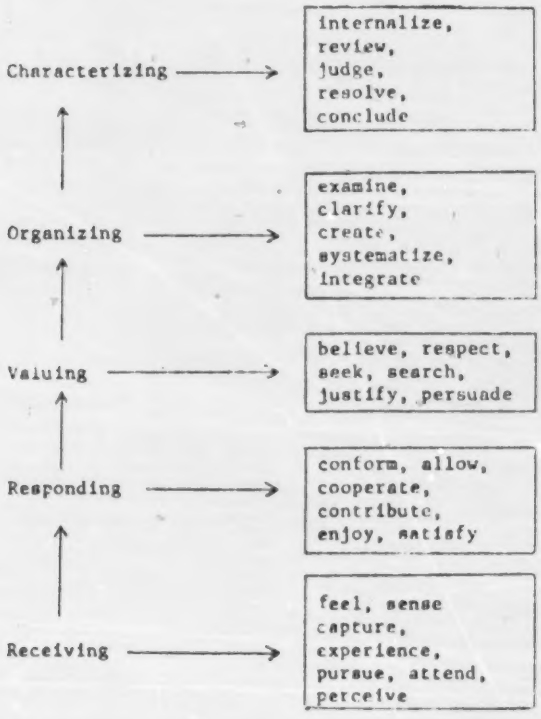
Cognitive Domain

GT #3

7. WORKSHEET: CLASSROOM APPLICATION: Integrating Cognitive and Affective Behaviors

Refer to your completed worksheet from the preceding exercise or make another copy. Select at least 3 of the objectives in the Taxonomy below. Under "Pupil Activity" on your worksheet, add at least one task that would stimulate and encourage affective responses from each of the HIGHER levels of the Affective Taxonomy. Attempt to provide a total, well-integrated ("confluent") learning experience for the pupil. The chart below provides some helpful cue words (from Kaplan, p. 107).

Taxonomy of the Affective Domain



Examples of the application of the taxonomy of the affective domain to the story, "The Interlopers," and to the science topic, Mammals, are provided on the following pages.

Subject: Literature (Short Story, "The Interlopers")

RECEIVING

To what extent did the story capture and hold your attention?

RESPONDING

Which part of the story impressed you most?

VALUING

Although Saki's stories are basically entertaining, a lesson or moral always seems to lurk behind the scenes. What might the lesson have been here? Does it have any relevance today?

ORGANIZATION

The hunter and the hunted in "The Most Dangerour Game" might be considered enemies although no previous circumstances had made them so. Which of the two stories seemed more natural and why?

ORGANIZATION

Review the three stories by Saki and tell which was closer to an experience you have had.

OR

Write a story in which you combine some of the elements Saki used without copying the plot of any of his stories and without imitating his style.

You might, however, combine different parts of the three stories - e.g., an imaginative girl ("The Open Windows") in a special place ("The Lumber Room") confronted suddenly by some wild creatures ("The Interlopers").

← - →

HIGHER LEVELS

Subject: Science

Topic: Mammals

RECEIVING

How many different characteristics did you discover?

RESPONDING

Name those characteristics which are typical of man.

VALUING

How does man differ from other mammals?

ORGANIZING

Of all the different kinds of mammals, which would you prefer to be if you were not a member of the family of man?

CHARACTERIZING

Charles Darwin developed a theory that man evolved from a previous mammal of the primate group. So far this theory has not been seriously challenged though some modern scientists do not agree with Darwin, and, of course, many who accept the Bible's version of God's creation of the first man and woman disagree with Darwin. What do you think was the origin of man? Why?

(THIS MAY BE A COMPOSITION.)

HIGHEST LEVELS

Affective Domain

8. READING: *The Taxonomy of the Psychomotor Domain.*

   Read thoughtfully the condensed version of Harrow's taxonomy by Alfred Lazar (Appendix, pp. 53+). Then check your understanding of the material with the Comprehension Exercise, Number 9.

9. COMPREHENSION EXERCISE: Psychomotor Domain

   a. Some of the categories seem to parallel Piaget's stages of intellectual development. Specify which ones.

   b. What kinds of activities in the Basic Fundamental Movements category fit well into Grades K-3?

   c. What does Kinesthetic Discrimination involve?

   d. For which type of gifted students is understanding and application of information about the psychomotor domain most likely to be needed by teachers?

   e. How can physical abilities be included in programs or enrichment activities for the gifted/talented?

   f. How can observation of skilled movements help to discover students with talents other than intellectual and academic?

   g. What is meant by non-discursive communication? How does it relate to classroom activities for the gifted/talented?

   h. Why is attention to the Psychomotor Domain especially important for the academically and intellectually gifted/talented?

Turn to the next page and compare your responses.

KEY TO COMPREHENSION EXERCISE

a. *Parallels to Piaget's SENSORIMOTOR stage*

Reflex movements
Basic fundamental movements, including locomotor movements, non-locomotor movements, and manipulative movements
Kinesthetic discrimination

b. *Basic-Fundamental Movements*

Locomotor movements

Sliding	*Hopping*	*Dancing*
Walking	*Rolling*	
Running	*Climbing*	

Non-locomotor movements

Pushing	*Stooping*	*Twisting*
Pulling	*Stretching*	
Swaying	*Bending*	

Manipulative movements

Crayon work	*Work with clay or Play-Doh*
Play with blocks	*Rhythm band*
Painting	

c. *Kinesthetic Discrimination*

Involves a sense of sidedness and balance, of body awareness in relation to surrounding objects and space with muscle sense for feedback about one's movement patterns.

d. *With gifted students who have disabilities. A knowledge of techniques developed by personnel in special education is beneficial to teachers of the gifted handicapped to help them develop their potential.*

e. *Physical Abilities*

Folk dancing	*Painting of murals*
Origami (paper folding)	*Construction of models*
Typing	*Action games*
Various crafts	*Creative drama*
Filming	*Interpretive dancing*
Puppetry	*Playing musical instruments*

and others which require <u>endurance</u>, <u>strength</u>, <u>flexibility</u>,

agility, quick reaction time, and dexterity.

f. Observation of advanced or highly skilled movements in any of the activities which require much muscle involvement can help spot students with special talents worthy of development.

g. Non-discursive communication is a complicated way to say body language. It includes posture, facial expressions, gestures, and other communicative movements of the body as in these activities: pantomime
interpretive dance
certain games that are non-verbal.

h. Attention to the Psychomotor Domain is especially important for the intellectually/academically gifted because these students are often denied opportunities for and access to classes which develop this area and which provide relief from the constant pressure of academic courses.

In addition, once society has truly lifted the lid off females in competitive sports, many girls highly gifted in this domain will be discovered and rewarded.

10. WORKSHEET: Classroom Application - Psychomotor

Refer to your completed worksheets for Exercises 6 (p. 36) and 7 (p. 41). Incorporate activities for these categories of the Psychomotor Domain: Physical Abilities, Skilled Movements, Non-discursive Communication.

In the example given on p. 39 - "The Interlopers" - the following would be appropriate in a pantomime:
Physical abilities: Actions of the wolves as they discover the two men
Skilled movements: Grudnitz's stalking of his prey
Non-discursive communication: Interplay between the two men pinned by the fallen trees or a "Wolf Dance" when the men are discovered
In the science lesson on p. 40:
Physical abilities: Demonstration of what mammals can do that other creatures cannot
Skilled movements: Man hunting other mammals for food
Non-discursive communication: Pantomime of man interacting with domesticated mammal, such as a dog

V. Postassessment

PLEASE DO NOT WRITE IN THE MODULE.

1. List and briefly define the 6 major classifications of Bloom's Taxonomy of the Cognitive Domain. The initial of each category is provided: K, C, A, A, S, E as cues.

2. Identify the category represented by each of the following:

   a. Based on the textbook's description of the process, draw a series of stick figures showing how a bill becomes a law.

   b. Explain the cartoonist's use of symbolism in the three cartoons.

   c. Outline the following short essay. Use a sentence outline.

   d. Discuss the similarities between the music of Haydn and Mozart. *(NOTE: Assume that the student is not simply remembering a comparison made by the teacher or the text.)*

   e. What is the best procedure for performing the experiment described?

   f. Which of the 5 W's are answered in the lead paragraph of the news clipping?

3. List and briefly define the 5 major classifications of the Bloom/Krathwohl Taxonomy of the Affective Domain. The initial of each category is provided: R, R, V, O, C as cues.

4. Identify the category represented by each of the following:

   a. Notice words in the poem that create pictures in your mind.

   b. Prepare a speech on a topic about which you feel strongly. Use evidence in an attempt to persuade your audience.

   c. Pretend that you must give up all but three things which you own. List the three and explain reasons for your choices.

   d. How did you feel the first time you saw *The Magic Flute*?

e. Draw a design or abstract shape that represents you as a total person. Interpret your drawing.

5. Explain the implications of Bloom's Taxonomies as teaching-learning models for the gifted/talented at your level and in your subject area(s).

6. Describe Harrow's Taxonomy of the Psychomotor Domain and its implications for planning for the gifted/talented at your level and in your subject area(s). The initials for each category are provided: RM, BFM, PA, PA, SM, NC as cues.

Turn to the following pages and compare your responses.

GT #3

POSTASSESSMENT EVALUATION

1. and 3. Compare your responses with the appropriate sections of the taxonomies at the back of each book.

Categories:

a. Comprehension (By drawing the figures in the correct series, the student shows his/her comprehension of how a bill becomes a law.)

b. Synthesis (In order to explain the symbolism asked for, the student must consider each of the elements in the cartoon, relate them to the statement the artist was making, and - selecting appropriate elements - indicate the meaning of the symbols in relation to the cartoon as a whole.)

c. Analysis (The student considers the main ideas and selects appropriate sub-topics in developing a sentence outline.)

d. Application (Here the student must think about the abstractions - the forms of music, the technical principles, the themes, and other elements - to compare the work of the two composers, using his/her knowledge and understanding in the process.)

e. Evaluation (The key word best indicates a judgment must be made, and judgments imply evaluation.)

f. Knowledge (The "5 W's" are specific elements of a lead paragraph in many news stories: Who, What, When, Where, and Why. The student isolates the information which answers any of those questions.)

3. (See #1 above.)

4. Categories:

a. Receiving (In order to "notice" the kinds of words indicated, the student must pay attention to the poem and to the question.)

b. Valuing (In the speech the student is presenting beliefs which are important to him/her and therefore reveal his/her values.)

c. Organizing (In order to determine which three things the student would keep if he/she had to give up all others, he/she must not only decide which things are of greatest value but to a degree must prioritize them in order to select the final three.)

d. Responding (The student is not just aware of something - *The Magic Flute* in this case - but is indicating his/her personal reactions.)

e. Characterizing (By developing an abstract representation of the student as a "total person," he/she must consider attitudes, behaviors, beliefs, and all else that enters into personality and character; then consolidate these in a physical symbol.)

5. As Dorothy Sisk has pointed out (p. 14), Bloom's taxonomies can be used in creating meaningful curricula for gifted students. The two domains supplement and complement each other, providing opportunities for both affective and cognitive growth; that is, for development of both feeling and thinking. As these interact naturally, learning is more effective and satisfying to the student. Relevance, personal meaning, and understanding are increased and enriched when concern for the affective aspects of education leads to interweaving them with the cognitive aspects.

6. See pages 22 (Number 5) and 45, 46 (Number 9 e, f, g, h) in the module.

Review the objectives on page 15 and rate yourself on a 1 to 5 (high) basis according to your candid opinion of the degree to which you have achieved each objective.

For example: 5 = very well, could not be improved
3 = average, fair demonstration of knowledge and understanding
1 = poor, need much improvement

If you score 3 or lower on any objective, recycle through the appropriate activities; then try the necessary part(s) of the Postassessment again.

GT # 3

Resources

Audio Tapes

JEAN PIAGET'S THEORY OF CLASSIFICATION

JEAN PIAGET'S THEORY OF CONSERVATION

JAB Press, Fair Lawn, N.J. 1976

Books

TAXONOMY OF EDUCATIONAL OBJECTIVES, HANDBOOK I: Cognitive Domain. Benjamin Bloom, ed. N.Y.: David McKay, 1956.

TAXONOMY OF EDUCATIONAL OBJECTIVES, HANDBOOK II: Affective Domain. Benjamin Bloom, David Krathwohl, and Bertram Masia, eds. N.Y.: David McKay, 1964.

THINKING GOES TO SCHOOL: Piaget's Theory into Practice. Hans G. Furth and Harry Wachs. N.Y.: Oxford University Press. 1975.

THINKING IS CHILD'S PLAY. Evelyn Sharp. N.Y.: Avon Books. 1969.

A CHILD"S EYE VIEW. Mary Sime. N.Y.: Harper & Row. 1973.

Films

* Order from the local Education Service Center.

CLASSIFICATION (# 21759 17 min. Region XIII)

CONSERVATION (# 30841 30 min. Region XIII)

Bibliography of Works Cited

Gates, Arthur I. and Others. EDUCATIONAL PSYCHOLOGY, Third Edition. N.Y.: The Macmillan Company. 1948.

Kaplan, Sandra. PROVIDING PROGRAMS FOR THE GIFTED AND TALENTED: A Handbook. Venture, CA: National and State Leadership Training Institute on the Gifted and the Talented. 1974. pp. 93, 96, 97, 107.

Sime. Mary. A CHILD'S EYE VIEW. Harper & Row, Publishers, Inc. 1973.

Sisk, Dorothy. TEACHING GIFTED CHILDREN.